

REMARKS

INTRODUCTION:

In accordance with the foregoing, claims 1-9 have been cancelled. Claims 10-19 have been added.

REJECTIONS UNDER 35 U.S.C. §102:

Claims 1-3, 5-7 and 9 are rejected under 35 U.S.C. §102(b) as being anticipated by Luc (U.S. Patent 4,144,110) or Luc (GB 1 385 473).

US 4,144,110 discloses an adhesion of plastic sheets or the like by a single rotary tool of which a tip has a concave portion by the use of friction of the rotary tool. However, this reference does not disclose a pair of rotors each having a concave portion opposite to each other with the lapped portions therebetween. Furthermore, this reference does not disclose forming a non-molten stirred layer with friction.

Similarly, GB 1 385 473 A shows a process for joining a steel device to an aluminum drum by a single rotary tool of which a tip has a concave portion by the use of friction of the rotary tool.

An advantage of the present invention of claim 10 is that tact time for processing can be shortened and the metal members are strongly joined.

REJECTIONS UNDER 35 U.S.C. §103:

Claims 4 and 8 are rejected under 35 U.S.C. §103(a) as being unpatentable over GB '473 or US '110 as applied to claim 1 above, and further in view of EP 0 893 189.

EP 0 893 189 A shows a friction stir welding of aluminum frame members of which an upper confronted and lapped portion of the frame member is joined by continuously moving and pressing one rotary tool along the upper confronted (joining) line and also a lower confronted and lapped portion of the frame member is joined by continuously moving and pressing the other rotary tool along the lower confronted (joining) line.

Accordingly, claim 10 is patentable over EP '189 at least for similar reasons as noted above.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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